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GEOGRAPHICAL RECORD

AMERICAN GEOGRAPHICAL SOCIETY

Monthly Meeting of December. A regular monthly meeting of the American Geographical Society was held on Tuesday evening, December 18, at the Engineering Societies' Building, 29 West Thirty-ninth Street. President Greenough presided. He submitted for confirmation the names of 22 candidates for Fellowship, each of whom had been approved by the Council, and they were confirmed as Fellows of the Society. Thereupon Mr. Theodoor de Booy of the Museum of the American Indian, Heye Foundation, New York, addressed the Society on "Unknown Parts of the West Indies." Mr. de Booy, whose article on the Virgin Islands of the United States in the November, 1917, number of the *Review* will be recalled, has spent the last eight years conducting archeological investigations in the West Indies. During this time he explored unknown areas in the larger islands and visited many of the smaller islands off the tourists' track. The regions described, and illustrated with colored lantern slides, included the Bahamas, the Cape Maysi district at the eastern extremity of Cuba, the west-central part of Jamaica, the interior of Hayti along the boundary between the two republics composing the island, the Virgin Islands, and Martinique.

NORTH AMERICA

War Activities of the U. S. Geological Survey. The activities of the U. S. Geological Survey during the fiscal year 1916-17 have been concentrated on investigations connected with military and industrial preparedness, as shown by the *Thirty-eighth Annual Report* of the Survey, just made public. These activities have included the preparation of special reports for the War and Navy Departments and the Council of National Defense, the making of military surveys, the printing of military maps and hydrographic charts, and the contribution of engineer officers to the Reserve Corps.

The Survey's investigations of minerals that have assumed special interest because of the war have been both expanded and made more intensive. Special reports giving results already at hand, the product of years of field and office investigation, have been published for the information of the general public or prepared for the immediate use of some official commission, committee, or bureau. Geologic field work has been concentrated on deposits of minerals that are essential to the successful prosecution of the war, especially those of which the domestic supply falls short of present demands. Every available oil geologist is at work in petroleum regions where geologic exploration may lead to increased production. Other geologists are engaged in a search for commercial deposits of the "war minerals"—manganese, pyrite, platinum, chromite, tungsten, antimony, potash, and nitrate.

The war not only diverted practically all the activities of the topographic branch of the Survey to work designed to meet the urgent needs of the War Department for military surveys, but led to the commissioning of the majority of the topographers as reserve officers in the Corps of Engineers, United States Army.

A large contribution to the military service is made by the map-printing establishment of the Survey. This plant has been available for both confidential and urgent work, and during the year has printed 96 editions of maps for the War Department and 906 editions of charts for the Navy Department. Other lithographic work, some of it very complicated, was in progress at the end of the year (*U. S. Geol. Survey Press Bull. No. 347*, December, 1917).

Forest Growth on Abandoned Farms. A hopeful outlook for New England is presented in a recent article by P. L. Buttrick (Forest Growth on Abandoned Agricultural Land, *Scientific Monthly*, July, 1917, No. 1, pp. 80-91). The abandoned farm is "coming back." Deserted because of its unfitness for agriculture, it is, by the natural process of "afforestation," becoming of value for its tree growth. Our Christmas trees come largely from the old-field spruces. The farms abandoned fifty years ago now furnish pulp-wood in considerable quantities. From the young white pines of Massachusetts box-boards are made. The loblolly pines of Maryland and farther south, growing on land where cotton was raised before the Civil War, now yield a large number of trees ten inches in diameter and sixty feet high. They are already a valuable commercial product. The tulip tree, known to lumber men as yellow poplar, grows rapidly on the abandoned fields of the Southern Appalachians and is a very valuable and a rather scarce wood. Even the stunted scrub oaks, the red cedar and the gray birch, if carefully handled by foresters, can be made productive of lumber. Moreover most of these old-field growths are gradually reverting to the original forest type.

Evaporation from Snow Surfaces in Irrigated Regions. The amount of water evaporated from snow is an important element in any region where irrigation is necessary, and is dependent, wholly or largely, upon the water derived from melting snow. Some field experiments along this line have been made by F. S. Baker, of the Utah Experiment Station (*Monthly Weather Rev.*, Vol. 45, 1917, pp. 363-366). The result of this investigation is that an evaporation of 3 inches is a fair figure for the winter of 1915-16. The winter equivalent of snowfall in the same locality was 21.91 inches. Hence about 14 per cent of the total snowfall was evaporated. The possible effect of forests is briefly considered. It is believed that the shade and the diminished wind velocity due to forests decrease evaporation, but that this effect may be counteracted, at least in part, by the greater area exposed to evaporation by the snow on the branches of the trees. This would be especially true of conifers. R. DeC. Ward.

Influence of the War on the Population Growth of Salvador. In common with its neighbors, San Salvador, distinguished as the smallest and most densely populated of Central American republics, owes its growth of population almost entirely to natural increase. Prior to 1914 the average birth rate was 41.7 per thousand, the death rate 21. In 1915 the difference was far less favorable, and in 1916 the birth rate had dropped to 36.9 while the death rate had risen to 33, leaving a total increase of 4,818 only, the lowest on the demographic register. The high number of deaths is attributed to the abnormal increase of malaria and this in turn is explained by the high price of quinine and other drugs. Thus, as the Director General of Statistics remarks (*Anuario Estadístico de 1916*, Direcc. Gen. de Estadística, San Salvador, 1917), do even the populations remote from the European War feel the retrogressive action of the great conflict.

EUROPE

The Situation of the Steel Industry in Great Britain. The industrial development of Britain commenced under favorable geographic conditions. The Coal Measures supplied not only fuel but also ore for the manufacture of wrought iron. With the coming of the steel age in the second half of the nineteenth century the situation became somewhat less favorable; costly processes of refinement demanded another form of ore, the Bessemer ''acid'' process of steel making being dependent on the use of a pure hematite. The distribution of ore of this grade is restricted in Britain. The Cumberland mines yield a hematite amongst the richest and purest in the world, and, as regards money value, the production of these mines stands first in the domestic supply, but it is not unlimited and the working is expensive. The British lead in steel production was maintained through importation of the raw material, a method that could be profitably followed by reason of the accessibility and productivity of the coalfields and the high organization of the merchant marine. In particular Bilbao, with quarries near the sea, became the leading source of imported ore. At present, though the Bilbao mines are nearing exhaustion and recourse must be had to less accessible deposits, Spain still contributes a major share, in 1913 not less than 60 per cent of the British import.

The eighties of the last century saw the beginning of the great steel industry of the Rhineland. Germany's coalfields, however, do not occupy so favorable a location as those of Britain, nor could Germany enjoy the same command of foreign markets for hematite. On the other hand, within easy reach were the vast iron deposits of Lorraine, estimated to hold 5,000,000,000 tons of ore. From the southern tip of Belgium to the south of Metz and Nancy the Jurassic ironstone formation runs along the political frontier. Before the war over three-quarters of the German iron-ore output and nearly nine-tenths of the French production came from within ten miles of the boundary. On the German side the Saarbrücken coalfield lies in close proximity. The ore, however, is phosphoric and unfit for steel making by the Bessemer process. Germany turned towards the ''basic'' process, whereby is obtained a grade of steel inferior but yet satisfactory for most constructional purposes and cheaper. Thus Germany, whose steel output at the beginning of the century was hardly equal to that of Britain, is now producing more than all the Allies put together except America. Britain has kept her place in the world's supply only in respect of high-grade tools and special steel alloys. In America the same tendency appears. Though great reserves of hematite are untouched, it is found more profitable to work the low-grade phosphoric ores near the developed lines of transportation, and the production of basic steel is assuming more and more importance.

In the manufacture of acid steel Britain is therefore unique. That she has so far been able to maintain it is due in large part to the geographical circumstances suggested above, marine supremacy, character and location of the coalfields. Already more than half the raw material of the industry comes from abroad. As the readily accessible deposits of hematite become exhausted this dependence may not be profitably sustained. But there is an alternative to costly importation in utilization of the home supply by the basic process. The Jurassic rocks of Britain, like those of Lorraine, are rich in phosphoric ore. In Cleveland (the northern end of the Jurassic escarpment) such ores have been worked for many years; indeed the basic process subsequently developed by Germany originated here. Besides the Cleveland deposits there are others favorably situated in regard to the eastern coalfields which are also well placed for importation of the foreign low-grade ores of northern France or Scandinavia. Thus might arise a locational differentiation of the steel industry; the west maintaining the output of high-grade material, while the east developed the cheaper basic product (W. G. Fearnsides: The Shortage of the Supply of Non-phosphoric Iron Ore, *Journ. Roy. Soc. of Arts,* Sept. 28, Oct. 5, and Oct. 12, 1917; abstracted in *Nature,* Nov. 22, 1917).

The Population of Spain. According to estimates made by the Instituto Geográfico y Estadístico of Madrid the population of Spain on December 31, 1916, was 20,747,893 (*Rev. de Geogr. Colon. y Mercantil,* Vol. 14, 1917, No. 5-6, pp. 174-175, Real Soc. Geogr., Madrid). This is a gain of 116,983 since December of the preceding year. One notable feature of the estimate is that in eleven of the forty-nine provinces there has been a decrease since 1915. Of these eleven, six provinces show a loss from the estimated population in 1914, and three have fewer inhabitants than in 1910. A comparison of recent statistics as given in the last issues of the "Statesman's Year Book" shows that this condition is not due to emigration, for in 1914 and 1915 less than half as many people emigrated from Spain as in the two preceding years. Economic conditions in Latin America discouraged Spanish immigration into the New World. The explanation of the loss in population in some of the Spanish provinces seems rather to be found in the decided gain made by other sections of the country. Madrid, Valencia, Barcelona, and the Canary Islands show a rapid growth in the last few years. These places are centers of industry and commerce, while the regions where loss of population is recorded depend upon agriculture and viticulture. Except in a few favored districts such as the *vega* of Valencia and the valley of Seville, an unproductive soil coupled with primitive methods renders farming an unprofitable occupation. Large areas in northern Spain where grape growing was formerly the principal industry have suffered from the invasion of the American grape louse. These conditions are accelerating in Spain the movement of population toward industrial and commercial centers, creating a denser population in the regions already most thickly populated and drawing people away from regions where density is already least.

AFRICA

The Climate of German East Africa. A study of the climatology of German East Africa, by Major H. G. Lyons, F.R.S., appears in a recent number of the *Quarterly Journal of the Royal Meterological Society* (Vol. 43, 1917, pp. 175-195). The discussion is especially timely because of the interest in the region as one of the recent theaters of war and because so little accurate information is available in regard to that particular district. The climatic data for German East Africa have usually been published in the official publications dealing with the German colonies (*Mitteilungen aus den deutschen Schutzgebieten,* Berlin, 1888-1912), and there have also been published several summaries and discussions of these data by prominent meteorologists. The colony lies between Lakes Tanganyika and Nyasa on the west and the Indian Ocean on the east and extends from near the equator to about latitude 10° S. It has low coastal plains on the shore of the Indian Ocean, the hill regions of Usambara in the northeast, of Iringa in the southeast, and of Langenburg in the south. To the westward lies the great plateau of the interior. By reason of its position near the equator most of the colony receives heavy tropical rains in the wet season. When the drier northeasterly and southeasterly air currents sweep over it, dry seasons occur, which, in some parts, last several months and are of considerable aridity. In places there are two well-marked maxima of rainfall, with a minor dry season between them, as in Uganda. The coast, which has its winds directly from the Indian Ocean, naturally receives a heavier rainfall than many parts of the interior.

In the coastal belt the hot, damp days and nights, especially from December to February, are very trying to Europeans. For days at that season the temperature may never fall below 80° F. Rain falls in every month, the maximum coming in March-May. The amounts are large. Coconut palms, sugar cane, aloes, bananas, and mangoes flourish.

The Usambara hills, in the northeast, have the advantage of elevation. At the higher altitudes, above the forest, many European plants can be cultivated, and persons whose health has deteriorated on the hot, enervating coast may regain strength and vitality. Kilimanjaro shows a beautiful series of vertical climatic zones. Bananas are cultivated on the lower slopes, and lately coffee and maize are being raised. Above the forest zone are the grass slopes, where large herds of sheep and cattle can graze. At still higher levels the vegetation becomes sparser and assumes an alpine character. The inland plateau (4,000-5,000 feet) has a long, hot dry season from May to October. This gives the greater part of the interior its character of savana forest, often passing into thorn forest. The end of the dry season brings the highest temperatures, even reaching 100°, in spite of the altitude. The rainfall is generally very moderate in quantity (December-April). This plateau is mainly a pastoral region.

The lake district has a moister climate than the plateau. The wet season is primarily March, April, and May. A minor rainy season, in November and December, continues in some parts through January and February. As the result of the plentiful rainfall and of the hot, equable climate, luxuriant vegetation flourishes. R. DeC. Ward.

The Economic Future of French North Africa. In a recent paper (Problems of French North Africa, *Journ. Roy. Soc. of Arts,* June 8, 1917), Captain Philippe Millet, colonial editor of *Le Temps,* Paris, depicts the present situation in Algeria, Tunis, and Morocco and outlines the problems that confront France in its future dealings with these countries on the Mediterranean border of Africa.

Captain Millet spoke of these countries as really forming an island, being bounded on the east, north, and west by the sea, and on the south by the desert. We know that this conception of the isolation of these countries is as old as the early days of the Roman occupancy of North Africa. One day a Roman saw from a mountain top in Algeria an undulating surface, far away to the south, which he believed was the sea. It proved to be a sea of sand, isolating Roman Africa more effectively than did the waters on the other borders.

In the time of the Roman Empire, French North Africa was really a part of the European system. This tie was finally broken by Islam, but France has revived the old relation. The present connection between the northern and southern Mediterranean shores is becoming closer every day. The man who sails from Marseilles at dawn sees the next dawn at Algiers. These African lands, so near Europe, are in resources among the richest in the world. The continuous growth of harbors and cities, Algiers and Oran, for example, is evidence of great economic development. Though Morocco is only beginning to develop its resources, the total trade of French North Africa amounted, before the war, to a little over $360,000,000 a year, over half of which represented trade between North Africa and France, the mother country. Moreover, the present wealth of this African France is still small compared with what it will become. The area of its farm lands is equal to all the arable land of Italy and Spain together, and not over a fourth of it is yet under cultivation. The mineral wealth seems to be equally important, not only in Algeria, where the great iron deposits of the Uezzan region are still untouched, but probably in Morocco also. In a word, North Africa has unlimited possibilities such as give an old nation like France indefinite outlet for its economic energy.

The census of 1911 showed 800,000 Europeans in Algeria alone, of whom 500,000 were French citizens. There are 50,000 Frenchmen in Tunis and 40,000 in Morocco. Many of these people are French, not by birth but by naturalization. France is absorbing in North Africa new European blood, chiefly Spanish and Italian, exactly as the United States turns into American citizens thousands of immigrants from abroad. It is a significant fact that in 1912 the French elementary schools in Algeria contained, besides 75,000 French children, 44,000 children of foreign nationality. Nearly all the European children are educated in the French schools. In a generation or two they will be a part of the French nation.

It is a noteworthy fact, also, that the French birthrate in Algeria is very high, thus providing France with additional new blood which she does not find in the ranks of her home population.

The native element, being Mohammedan, has much in common with the Egyptians and does not easily understand French ways. It is doubtless fortunate that among the whole native element of Algeria, estimated at ten or eleven millions, about nine-tenths are pure Berbers. In other words, they are of ancient white stock and may be regarded as intermediary between the Arabs and the Europeans of Algeria. Thousands of the Berbers have been in the habit of going to France, where they work in factories and wear European clothing. Over 270,000 of these North Africans are now soldiers fighting in Europe under the French colors. Thus this African France, still in its infancy, is adding substantial strength to that of the old country. Cyrus C. Adams.

ASIA

Japan, the Commercial Focus of the Pacific. A list of the chief Pacific ports ranked according to their foreign trade in 1916 is given in *Commerce Reports* for October 31, 1917. Excluding Hongkong, of which complete official statistics are not kept, the ports with an annual trade exceeding a million dollars are: Yokohama, $353,000,000; Kobe, $352,000,000; Shanghai, $348,000,000; Singapore (1915), $273,000,000; Sydney (1915), $257,000,000; San Francisco customs district, $209,000,000; State of Washington customs district, $300,000,000. Most significant is the position of the Japanese ports. They exhibit the results of an enormous industrial and commercial progress during the war. Industrially Japan has profited both by the increased call for her old-time products, textiles for instance, and the new demand for war materials. Demands have grown in the old-established markets—imports from the United States have doubled; Chinese needs have created a boom trade in bar silver, and markets practically new have been opened up—exports to South Africa increased by 400 per cent between 1915 and 1916 (*Suppl. to Commerce Repts. No. 55a*, Aug. 28, 1917, and *Commerce Repts.*, Feb. 5, 1917; see also *ibid.* for March 31, 1917). Trade expansion has been fostered, indeed rendered possible, by the parallel progress in the establishment of a mercantile marine. In July, 1914, there were three great shipping nations in the Pacific: Britain, Japan, and the United States. Two years later Japan was entirely master of the situation. Britain was outmatched, while the tonnage (gross) carried under the United States flag was reduced from 80,000 to 5,000! Japanese tonnage had made a considerable absolute increase (Abraham Berglund: The War and Trans-Pacific Shipping, *Amer. Econ. Rev.*, Sept., 1917).

Of Japan's ports Kobe, outlet for the busy and productive region round the eastern end of the Inland Sea, has made the greatest advance. Figures for the first seven months of 1917 show Yokohama, heretofore the first port, completely outranked by Kobe. It is improbable that the trade of Hongkong approaches that of the Japanese port; so Kobe may justly claim to be the first port of the Pacific in foreign commerce.

AUSTRALASIA AND OCEANIA

The Settlement of Tropical Australia. Dr. Griffith Taylor, of the Commonwealth Bureau of Meteorology, has lately given considerable attention to the climatic controls of human settlement, with special reference to Australia (see the review on p. 86). In a recent discussion of the settlement of tropical Australia (reprint, *Melbourne Herald*, no date), Dr. Taylor deals with the season and ''reliability'' of the rainfall and with the wet-bulb temperatures as two critical factors in determining human settlement and human occupations. A chart is given showing that as regards the reliability of the rainfall over the eastern portion of the Barkly Tableland—a valuable grazing area in the Northern Territory—the average ''deviation'' (departure from the normal) is nearly 50 per cent. This condition, which implies that here the rainfall may be anywhere between 12 and 37 inches, is not, in the opinion of the author, suited to economic wheat-growing. Dr. Taylor adopts 70° wet-bulb temperature ''as the limit of comfort for our race.'' This means that when the mean wet-bulb readings average 70° for a long time the climatic conditions are not suitable for close white settlement. On the other hand, open-air occupations, like stock raising, may be successfully followed. The duration of wet-bulb readings of 70° is shown for Australia by lines. These lines represent a duration of from twelve months at Thursday Island, in the extreme north, to two months at Brisbane, and no months over about half of southern Australia. The six-months duration of 70° wet-bulb readings is believed to be ''a definite climatological boundary.'' Locally the unfavorable conditions are ameliorated by other factors, such, for example, as the southeast trades on the Queensland coast. Dr. Taylor's conclusion is that the empty northern lands of Australia are pastoral, not agricultural. They are not suitable for white labor *at present*, although a gradual acclimatization process may fit future generations of white men and women for residence there. R. DeC. Ward.

HUMAN GEOGRAPHY

The Desert Aridity of Heated Houses. The relative humidity of an ordinary heated house during the colder months approximates that of desert air. The indoor ''climate'' has become thoroughly artificial. We live, for most of our northern winters, in calm, ''dead,'' desiccating air. This subject has been investigated by several writers, some of the early discussions being by R. DeC. Ward in the *Boston Medical and Surgical Journal*, March 1, 1900, and in the *Journal of Geography*, September, 1902, and by Mark

Jefferson in the latter journal, December, 1902. A further contribution to the matter has been made by S. D. Flora of the U. S. Weather Bureau at Topeka, Kan. (*Monthly Weather Rev.*, Vol. 45, 1917, pp. 231-233). The observations were made indoors and outdoors during November and December. The mean relative humidity indoors was 28.4 per cent, that outdoors, 77.6 per cent. The corresponding mean temperatures were 73.2° and 33.9°. The question of raising the humidity indoors is not as simple as it seems. The amount of water required for evaporation is large, and, if the air becomes too damp, moisture will condense on windows and on painted walls in cold weather. The rational solution of the problem is to keep rooms and houses from being excessively heated, for higher temperatures mean greater capacity for water vapor; to provide for a certain amount of evaporation; and to maintain good ventilation.

In connection with the physiological effects of dry indoor air some observations made by Professor E. L. Thorndike and P. J. Kruse of conditions in schools are noteworthy (*School and Society*, Vol. 5, 1917, pp. 657-660). Two divisions of a sixth grade of 43 pupils each, of equal initial ability, were treated alike in every respect except in regard to the dryness of the schoolroom. The ''dry'' group worked in a relative humidity averaging 28.7 per cent. The ''moist'' group were in a room whose humidity averaged 42.2 per cent. The temperature was alike for both groups, about 67.4° F. The two groups were carefully tested, with the result that there is ''no demonstrable effect of relative humidity on the intellectual progress of schoolchildren. What slight difference there is favors the dry condition.'' The conclusion is that there is no likelihood that the humidification of schoolrooms during the winter will improve the mental work of the children.

Professor E. G. Dexter (''Weather Influences,'' 1904) some years ago found that schoolchildren showed an excess of demerits for low humidity as compared with those for moist air. The inference was that restlessness increased in drier air. The stimulating, nervous effects of dry air are well known, as are the quieting effects of damp air, especially when warm.

R. DeC. Ward.

GEOGRAPHICAL NEWS

Founding of the Cortes Society. Interest in Latin America has found new expression in the recent formation of ''The Cortes Society'' with offices in the Museum of the American Indian, Heye Foundation, Broadway at 155th Street, New York. The purpose of this new society is to publish documents and narratives dealing with the discovery and conquest of Latin America. Its aim will be to make available to the English reader unpublished manuscripts and accounts never before translated. In this it will do work similar to the Hakluyt Society, but in a special field. The undertaking should have a wide appeal, for some of the works of the early Spanish explorers, products of Spain's glorious literary past, dealing with a theme that was of all-absorbing interest at the time, make extremely entertaining reading today. As contributions to geography such volumes as those just published, the ''Narrative of Some Things of New Spain and of the Great City of Temestitan, Mexico, written by the Anonymous Conqueror, a Companion of Hernan Cortes,'' translated by Marshall H. Saville, and ''An Account of the Conquest of Peru, written by Pedro Sancho, Secretary to Pizarro and Scrivener to His Army,'' translated by Philip A. Means, are of great value, for both give descriptions of the land and people in regions that offer most striking examples of how physical environment has influenced the development of human culture. Works which will follow during the year 1918 will include the ''Misfortunes of Alonzo Ramirez, by Siguenza y Gongora,'' translated by George Parker Winship, the ''Itinerary of Grijalva,'' translated by Marshall H. Saville, the ''Narrative of the Discovery and Conquest of the Kingdoms of Peru, by Pedro Pizarro,'' translated by Philip A. Means, and the ''Account of the Conquest of Mexico, by Andres de Tapia,'' translated by Randolph M. Saville.

The Cortes Society has a membership of about eighty individuals, as well as societies and libraries, whose interest in Latin America is literary, scientific, and historical. There are no dues, a member's only obligation being to subscribe to the publications of the Society. The following are the officers: President, F. W. Hodge, Bureau of American Ethnology, Washington, D. C.; Vice-President, General Hugh L. Scott, War Department, Washington, D. C.; Secretary and Treasurer, Marshall H. Saville, Museum of the American Indian, Heye Foundation, New York; Council: the above officers and George Parker Winship, Harry Widener Memorial Library, Harvard University, Cambridge, Mass., and Philip A. Means, Harvard Club, Boston, Mass.